UNITED STATES UTILITY PATENT APPLICATION

OF

ALAN R. KAUFMAN

FOR

METHOD FOR ISSUING A DERIVATIVE CONTRACT

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Field of Invention

[0001] This invention relates to the field of securities and more specifically, is directed to issuing derivative contracts.

Background of Invention

[0002] Interest in the securities market has increased over the years. Investors may desire greater returns on their assets, so they may often seek alternative investments. One way investors may analyze different markets is by indices. An index reports changes, usually expressed as a percentage, in a specific financial market, in a number of related markets, or in the economy as a whole. Each index measures the market or markets it tracks from a specific starting point, which might be as recent as the previous day or many years in the past. Consequently, two indexes tracking similar markets may report different numbers.

[0003] Two indices may also produce different results because some indices are weighted and others are not. Weighting means giving more significance to some elements in the index than to others. For example, a market capitalization index weighs larger companies more than smaller companies.

[0004] One type of investment based on an index is an index mutual fund. An index mutual fund may be designed to mirror the performance of a major stock or bond index, such as Standard & Poor's 500-stock Index (S&P 500®) or the Russell 2000®, by purchasing all of the securities included in the index or a representative sample of them. It is believed that each index fund aims to keep pace with an index, but not to outperform it. This strategy may be successful during a bull market when an index reflects increasing prices. However, it may produce disappointing returns during economic downturns when an actively managed fund might take advantage of investment opportunities where and when they arise.

[0005] An index fund's broadbased portfolio may not be actively managed, so the index funds may have lower-than-average management costs and smaller expense ratios. That means less of the fund's growth may go to pay expenses, and more may be returned to the fund's investors. However, not all index funds provide the same level of performance.

[0006] Another type of investment using an index is an index option. Index options may allow investors the chance to earn (or lose) money by anticipating the gains or losses in an industry group or a broader segment of the market. For example, an investor who thinks technology stocks are going to fall can buy an option on a technology index, rather than selling short a number of different technology stocks. Trading in index options may occur on the New York Stock Exchange (NYSE®), the American Stock Exchange (AMEX®), the Chicago Board Options Exchange (CBOE®), or other exchanges.

Summary of the Invention

[0007] The invention provides a method for issuing a derivative contract to a buyer. This method may include providing an index that represents a measure of commercial market volatility, assigning a target value for the index at an expiration of the derivative contract, identifying a premium for the derivative contract, estimating a return value to pay a buyer at the expiration if the target value is attained, and issuing the derivative contract to the buyer in accordance with the premium, expiration, and return value.

[0008] The invention also provides another method for issuing a derivative contract to a buyer. This method may include providing an index that represents a measure of commercial market volatility, assigning a target value for the index at an expiration of the derivative contract, identifying a premium for the derivative contract, estimating a return value to pay the buyer at the expiration if the target value is attained, issuing the derivative contract to the buyer in accordance with the premium, expiration, and return value, trading the derivative contract on an exchange, and charging an exchange fee for selling or purchasing the derivative contract. The index includes commercial markets chosen from sectors, including currencies, financials, grains, metals, meat, softs, energy, and combinations thereof.

[0009] The invention provides a system for issuing a derivative contract to a buyer. This system may include a database for storing market data used to calculate an index that represents a measure of commercial market volatility, and a processor that calculates the index, associates a target value with the index at an expiration of the derivative contract, associates a premium with the derivative contract, estimates a return value to pay a buyer at the expiration if the target value is attained, and issues the derivative contract to the buyer in accordance with the premium, expiration, and return value.

[0010] The invention further provides another system for issuing a derivative contract to a buyer. This system may include a database for storing market data for commercial markets used to calculate an index that represents a measure of commercial market volatility, and a processor that calculates the index, associates a target value with the index at an expiration of the derivative contract, associates a premium with the derivative contract, estimates a return value to pay a buyer at the expiration if the target value is attained, and issues the derivative contract to the buyer in accordance with the premium, expiration, and return value. The index includes commercial markets chosen from sectors, including currencies, financials, grains, metals, meat, softs, energy, and combinations thereof.

Brief Description of the Drawings

[0011] The accompanying drawings, which are incorporated herein and constitute part of this specification, illustrate the presently preferred embodiment of the invention and, together with the general description given above and the detailed description given below, serve to explain the features of the invention:

Fig. 1 is a block diagram of a preferred embodiment of the present invention.

Fig. 2 is a block diagram of a system for implementing the preferred embodiment of the present invention.

Figs. 3a and 3b are graphs illustrating comparative unit asset values of the preferred embodiment of the present invention.

Detailed Description of the Preferred Embodiments

[0012] Reference will now be made in detail to the preferred embodiments of the present invention, an example of which is illustrated in the accompanying drawings. It is to be understood that the Figures and description of the present invention included herein illustrate and describe elements that are of particular relevance to the present invention, while eliminating, for purposes of clarity, other elements found in typical derivative contracts and indices.

[0013] Fig. 1 illustrates a method of issuing a derivative contract to a buyer. In step 1, an index that represents a measure of commercial volatility is provided. Preferably, the index includes a portfolio of commercial markets chosen from sectors, including currencies, financials, and commodities. More preferably, the portfolio has about twenty-five (25) commercial markets.

[0014] Commercial markets differ from investment markets. In general, three kinds of participants exist in any market: hedgers, speculators (investors), and arbitrageurs. The role of arbitrageurs is to profit from price inefficiencies, and in return, provide liquidity. Hedgers are commercial producers or consumers of a commodity who hedge their price risk by transferring it to another entity. The investor's role specifically in relationship to the hedgers is to take the opposite position of the commercial hedgers, which is accepting price volatility. In return, the investor receives a premium, which is similar to an insurance company being paid a premium in return for accepting event risk. Thus, the investor generates return by accepting the excessive price risk to which commercial hedgers are naturally exposed, but unwilling to take. Traditional investment markets (i.e., equities) serve an economic function of capital formation for companies. They are typically dominated by long term investors who buy and hold their positions. In contrast, commercial markets, or principally commodities, serve to meet the needs of consumers and producers and are dominated by commercial interests selling their production, acquiring raw materials, and hedging themselves against price risk.

[0015] In one embodiment, as shown in Fig. 2, the index 10 is determined by using equal weighted, unleveraged investments from the commercial markets. Database 20 stores information, or market data, used to calculate the index 10. The index 10 is calculated by a processor 30. The market data may include the values of investments in commercial markets or preferably, the exchange on which the market is traded, the market value, the unit asset value, long and short term signals, and contract information. The index 10 used in one embodiment is further described in "The Commercial Markets Index," which is incorporated herein by reference and attached hereto as Exhibit A.

[0016] Preferably, markets are selected for inclusion in the index 10 according to liquidity, investability, and diversification. Markets that are liquid have an open interest large enough to guarantee timely execution of position changes and large enough to accommodate large amounts of capital with low market impact. The index 10 excludes contracts that trade in excessively large lot sizes, which are considered to have a low investability, to allow downward scalability of investment. Markets are also chosen to maximize diversification benefits and avoid over-concentration in any market or sector.

[0017] For example, the sectors in the index 10 may include currencies 41, energy 42, financials 43, grains 44, metals 45, softs 46, and meat 47. The markets in the currencies sector may include

the Australian Dollar, British Pound, Canadian Dollar, Euro, Japanese Yen, and Swiss Franc. The markets in the energy sector may include crude oil, heating oil, natural gas and unleaded gas, and the markets in the financials sector may include US 30-year bonds, US 10-year bonds and US 5-year bonds. Markets, which may be in the grains sector, include corn, wheat, soybeans, soybean oil, and soybean meal. Copper, gold, and silver may be the markets for the metals sector. The markets for the softs sector may include coffee, cotton, and sugar, and the market for the meat sector may be live cattle. These markets may be traded on any exchange, such as IMM®, NYMEX®, CBOT®, CSCE, COMEX®, NYBOT®, and CME®.

[0018] In the preferred embodiment, the index 10 is developed by taking long and short positions to reflect a full range of hedger activity driving returns in markets. An investment benchmark of returns available to a momentum strategy applied to the portfolio may be provided to investors. All individual contracts in the index 10 are rolled forward regularly to maintain market exposure beyond the contracts' expiration dates. The roll strategy may attempt to follow actual market hedger activity or may follow the relative movement of open interest across the actively traded contracts of a given market. All contracts are held for a minimum of ten (10) trading days.

[0019] The index 10 produces long and short signals using a trend-following algorithm. The index 10 uses unit asset value ("UAV") for generating signals. The UAV is calculated per market, daily, as follows:

$$UAV_{(today)} = UAV_{(yesterday)} \times (1 + \text{Pct Chg (Closing Price)})$$

where:

$$\text{Pct Chg (Closing Price)} = (\text{Close}_{(today)} - \text{Close}_{(yesterday)}/\text{Close}_{(yesterday)})$$

Signals for all markets are evaluated every four weeks, and signals are generated for each market when 13 weeks of data are available. This algorithm is described in more detail in "The Commercial Markets Index" attached hereto. Comparative UAVs based on annual return from 1980 to 2000 are shown in Figs. 3a and 3b. Fig. 3a shows a graph of the index ("CMI") compared to other commercial market indices, and Fig. 3b shows a graph of the CMI compared to traditional capital market indices.

[0020] A market value curve is constructed from the UAV values. At any point in time, the market value is:

$$MV_t = MV_{t-1} + [(UAV_t - UAV_{t-1}) \times POS_t \times AF_t]$$

where:

MV_t = Market value at time t;

MV_{t-1} = Market value at time t-1;

UAV_t = UAV at time t;

UAV_{t-1} = UAV at time t-1;

POS_t = Position at time t;

MV_0 = Market value at time (0) = UAV on the day prior to market entry; and

$AF_t = \frac{MV_t}{UAV_{t-1}}$ = Adjustment factor at time t.

The adjustment factor only changes when an index market position moves from a short to a long position. The market value is further explained in "The Commercial Markets Index" attached hereto.

[0021] As illustrated in Fig. 1, after the index is calculated in step 1, a target value for the index at an expiration of the derivative contract is assigned in step 2. A premium is identified in step 3, and a return value to pay buyer at the expiration if the target value is obtained is estimated in step 4. In step 5, the derivative contract is issued to the buyer in accordance with the premium, expiration, and return value. Steps 2-5 may be implemented by the processor 30 shown in Fig. 2.

[0022] In the preferred embodiment, the buyer pays the seller for the derivative contract. The derivative contract may be traded on an exchange, and a fee may be charged for selling or purchasing the derivative contract. Examples of derivative contracts include:

-Exchange traded futures contracts

-Exchange traded options on futures contracts

-Exchange traded and over-the-counter swap agreements

-Exchange traded option agreements

-ETF's (Exchange Traded Funds)

-Average price options

-Look back options

-Index Linked Structured Notes.

[0023] In the preferred embodiment, the contract specifications for trading on an exchange include:

Trading Unit:	$5 x the Commercial Markets Index (CMI) (approx. current contract value: $66,500)

Trading Hours:	9:40 am to 3:15 pm
Contract Months:	January, February, April, June, August, November
Ticker Symbol:	CB
Minimum Fluctuation:	1 CMI point, or $5.00 per contract
Price Quotation:	Prices shall be quoted as whole Index points
Last Trading Day:	Second Friday of the expiring contract month
Settlement:	Cash Settlement
Position Limits:	10,000 contracts net long or short.

[0024] While the invention has been described in detail and with reference to specific features, it will be apparent to one skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention. It is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

Table 1

Sectors and Markets in the Commercial Markets Index - 2001

Market	Exchange	Data Start Date	First Contract	Contract Months
Currencies				
Australian Dollar	IMM-CME	1/13/1987	March1987	Mar, Jun, Sep, Dec
British Pound	IMM-CME	5/16/1972	Sep1972	Mar, Jun, Sep, Dec
Canadian Dollar	IMM-CME	5/16/1972	Sep1972	Mar, Jun, Sep, Dec
Euro	IMM-CME	10/1/1999	Dec1999	Mar, Jun, Sep, Dec
Japanese Yen	IMM-CME	5/16/1972	Sep1972	Mar, Jun, Sep, Dec
Swiss Franc	IMM-CME	5/16/1972	Sep1972	Mar, Jun, Sep, Dec
Energy				
Crude Oil-Lt Swt	NYMEX	3/30/1983	June1983	All
Heating Oil	NYMEX	11/15/1978	Feb1979	All
Natural Gas-HH	NYMEX	4/3/1990	June1990	All
Unleaded Gas-NYH	NYMEX	12/3/1984	Feb1985	All
Financials				
US 30-yr Bond	CBOT	8/22/1977	Dec1977	Mar, Jun, Sep, Dec
US 10-yr Bond	CBOT	5/3/1982	June1982	Mar, Jun, Sep, Dec
US 5-yr Bond	CBOT	5/20/1988	Sep1988	Mar, Jun, Sep, Dec
Grains				
Corn	CBOT	1/2/1969	March1969	Mar, May, Jul, Sep, Dec
Wheat	CBOT	1/2/1969	March1969	Mar, May, Jul, Sep, Dec
Soybeans	CBOT	1/2/1969	May1969	Jan, Mar, May, Jul, Aug, Sep, Nov
Soybean Oil	CBOT	1/2/1969	March1969	Jan, Mar, May, Jul, Aug, Sep, Oct, Dec
Soybean Meal	CBOT	1/2/1969	March1969	Jan, Mar, May, Jul, Aug, Sep, Oct, Dec
Metals				
Copper	COMEX	1/2/1969	March1969	Mar, May, Jul, Sep, Dec
Gold	COMEX	1/2/1975	Feb1975	Feb, Apr, Jun, Aug, Oct, Dec
Silver	COMEX	1/2/1969	Sep1969	Mar, May, Jul, Sep, Dec
Softs				
Coffee	CSCE	10/10/1972	Dec1972	Mar, May, Jul, Sep, Dec
Cotton	NYCE	1/2/1969	March1969	Mar, May, Jul, Oct, Dec
Sugar # 11	CSCE	1/2/1969	March1969	Mar, May, Jul, Oct
Meat				
Live Cattle	CME	1/2/1969	Feb1969	Feb, Apr, Jun, Aug, Oct, Dec

[0031] Exhibit A2 at the rear of the document gives further contract details for each of the markets currently included in the CMI.

Roll Strategy

[0032] All individual contracts in the Index must be rolled forward regularly in order to maintain market exposure beyond the contracts' expiration dates. The roll strategy is defined so as to maintain liquidity while providing a smooth and rational transition from contract to contract. The CMI's roll strategy attempts to follow actual market hedger activity as closely as possible. In practice, the roll strategy follows the relative movement of open interest across the actively traded contracts of a given market.

[0033] The relatively short contract life and the specific characteristics of some market price data require certain additional constraints on the rolling implementation. All contracts must be held a minimum of ten (10) trading days. From the tenth day of trading, the Index rolls into the deferred contract according to logic that defines a rolling evaluation window, an open-interest trigger, and a time-based trigger.

Rolling Evaluation Window

[0034] The methodology defines a window within which evaluation for potential rolling can be made for each market. A roll is defined here as the first day that the Index no longer holds the old contract and that it holds a new contract. The first day of the evaluation window is the thirtieth (30) calendar day before the first day of the contract expiration month. Idiosyncrasies in individual markets and market sectors fix the last day of the window differently for each market, according to the categories listed in Table 2.

Table 2

Defining the Last Day of the Rolling Evaluation Window

Market		Last day of rolling evaluation window
Crude Oil	Coffee	20 calendar days before the first day of the contract expiration month
Heating Oil Unleaded Gasoline Natural Gas	Cotton	15 calendar days before
Corn Soybean Oil Soybeans Soybean Meal Wheat Sugar Live Cattle	5-Year Notes 10-Year Notes 30-Year Bonds Gold Copper Silver	10 calendar days before
Australian Dollar British Pound Canadian Dollar	Euro Japanese Yen Swiss Franc	5 calendar days after

[0035] A roll signal occurs within the evaluation window based on the following triggers:

Open-Interest Trigger

[0036] A roll is triggered when the amount of open interest in any of the nearest three deferred contracts (see exceptions below) matches or exceeds that of the currently held contract. The Index then rolls to the contract with the greatest open interest. If two forward contracts have the same open interest value, the nearer of the two is flagged for entry.

[0037] If a forward contract has no open interest data for the day being analyzed, the Index scans up to three (3) previous trading days for that contract for a valid open interest value. This open interest value is used in the comparison to determine a roll signal. If there are no valid open interest values in this three-day period, the Index uses an open interest value of zero (0) for that contract.

[0038] Exceptions: Special market circumstances call for exceptions in how many nearby contract months are eligible for the roll, as listed in Table 3 below.

Table 3

Open Interest Trigger Exception List

Market(s)	Description
Australian Dollar British Pound Canadian Dollar Euro Japanese Yen Swiss Franc 5 Year Note 10 Year Note US Bond	Only 1 nearby contract month is eligible for rolling forward

Time-Based Trigger

[0039] In order to maintain liquidity, the Index avoids holding a position in a contract too close to the contract's expiration date. Thus, the methodology forces a roll signal on the last day of the rolling evaluation window.

[0040] When this date falls on a weekend or holiday, a roll is signaled on the next available trading day. When the last day of the evaluation window is reached, the roll strategy targets the contract month with the highest level of open interest, or the closest nearby month if open interest data is missing.

Roll Time-Line

[0041] The systematic implementation of the roll requires a step-by-step process that necessarily involves a practical time lag between when data is first reported and when an actual position is in place (that is, when a roll, as herein defined, occurs). Please refer to Table 4 below. The Index assumes that open interest crosses during the market day on Day 1 and is reported after the close on Day 2 (since open interest is reported with a one-day lag). After the data is available on Day 2, evaluation is made for possible triggers as defined above. On Day 3, the Index enters into the new contract at the close and on Day 4, a roll occurs.

Table 4

Rolling Implementation Timeline

	Day 1	Day 2	Day 3	Day 4
Market Day:	Open interest actually crosses.		New contract entry on close.	New contract held. **Roll occurs.**
Post Close:		Open interest cross reported. Evaluate for possible trigger generation- assuming the current date falls within the evaluation window.		

First Contract

[0042] There may be more than one contract available on a market's first day of price data. Table 1 includes a list of the first contracts that were selected for use in the CMI.

SIGNAL GENERATION

[0043] The Index produces long/short signals using a simple trend-following algorithm. Because of the price jumps created by contract rolls, the Index uses Unit Asset Value for generating signals, rather than raw price data.

Unit Asset Value

[0044] In order to create a continuous time series derived from actual prices, a unit asset value (UAV) is calculated per market, daily, as follows:

$$UAV_{(today)} = UAV_{(yesterday)} * (1 + PctChg(Closing\ Price))$$

Where:

$$PctChg(Closing\ Price) = (Close_{(today)} - Close_{(yesterday)})/Close_{(yesterday)}$$

Note: PctChg is always calculated using the closing prices of the ***currently held*** contract. (If the Index holds a new contract today, it uses yesterday's closing price of the new contract to calculate PctChg.)

[0045] The original UAV is set to 1000 on day 1 of each market's history. The choice to set the initial value of the UAV to 1000 is arbitrary; the daily percentage construction of the UAV

guarantees that the shape of the UAV curve is identical regardless of initial value, and only the scaling along the Cartesian plane changes.

[0046] Signals for all markets are evaluated every four (4) weeks on a Tuesday night. Tuesday was chosen to avoid any potential weekend effects and also to minimize holiday interference. To ensure that all markets trade on the same four- (4) week intervals, a master calendar is synchronized to a **January 9, 1900** start date and all markets use this calendar for signal generation. Of course, data is not available for every market that far back. Signals are generated for a market when 13 weeks of data are available.

[0047] To determine a signal, a 13-week moving average of the UAV is calculated (i.e., the average of the past 13 Tuesdays' UAVs, including today's). If any of the Tuesdays is a holiday, the nearest previous UAV is used. Table 5 describes the conditions governing long/short signal generation.

Table 5

Conditions for Generating Long/Short Signals

Evaluation	Signal
UAV > 13 week moving average	LONG signal is generated
UAV < 13 week moving average	SHORT signal is generated
UAV = 13 week moving average	Previous signal is maintained

[0048] It is assumed that a signal generated on Tuesday night (using Tuesday's closing price) will be executed at the following trading day's close (usually Wednesday) and will result in a new position held on the second trading day following signal generation. Except for holidays, this would be Thursday. If there is no trading on that Thursday (e.g., Thursday is a holiday), the Index is considered exposed in the new position on the next trading day for which there is data.

[0049] The process as discussed so far creates one continuous UAV series per market, using the roll strategy as defined above to concatenate contracts. From each market UAV series, positions are derived that can be represented by a time series using a value of 1 to illustrate a trading day with long exposure and a value of –1 to illustrate a trading day with short exposure. These two times series are used to create a market value curve for each market.

INDIVIDUAL MARKET VALUE CURVES

[0050] With one exception, constructing this market value curve can be done in a straightforward manner, once a series of daily positions has been established for each market. The exception results when an Index market position shifts from short to long. Consider the trading scenario depicted in Table 6.

Table 6

Effect of Position Change on Market Value

Date	UAV	Position	Market Value
1/3/1950	1000	1	1000
1/4/1950	1100	1	1100
1/5/1950	1200	1	1200
1/6/1950	1300	-1	1100
1/9/1950	1400	-1	1000
1/10/1950	1500	-1	900
1/11/1950	1600	-1	800
1/12/1950	1700	-1	700
1/13/1950	1800	1	*741.2*

[0051] Notice what happens for the period between Jan. 3 and Jan. 5: the Market Value curve is exactly identical to the UAV. The reason is straightforward; since the Index market position is long, a positive change in price and UAV is a positive change in market value.

[0052] From Jan. 6 through Jan. 12, however, the asset continues to gain 100 in value each day, but now the Index market position has switched to a short position. Each increase in the UAV now represents an equal *reduction* on the Market Value curve.

[0053] On Jan. 13, the Index market position switches back to long again, after 'cashing out' the short position for 700. When the Index market takes a new position on the long side of the UAV, it is no longer able to 'purchase' one 'unit'. Rather, an investment of 700 translates to 700/1700, or 0.412 'units'. Thus, for every advance of 100 that the UAV makes, Market Value only moves 41.2; hence final Market Value on Jan. 13, 1950 becomes 741.2.

[0054] To represent this change in the share of the market UAV with which the Market Value now participates, the process maintains a running "Market Value Adjustment Factor" to use as a multiplier to the UAV percentage change. This makes it possible to accurately track the market's

value over time, simulating what would be occurring in reality. *This adjustment factor is updated upon a signal change and also following the close of the last trading day of the month.*

[0055] The adjustment factor is defined as follows:

$$AF_t = \frac{MV_{t-1}}{UAV_{t-1}}$$

Where:

AF_t = Adjustment factor at time t
MV_{t-1} = Market Value at time t-1
UAV_{t-1} = Unit Asset Value at time t-1

[0056] As a mathematical consequence, the adjustment factor only changes when an Index market position moves from a short to a long position.

[0057] Additionally, the definition of our Market Value at any point in time is as follows:

$$MV_t = MV_{t-1} + [(UAV_t - UAV_{t-1})*POS*AF_t]$$

Where:

MV_t = Market Value at time t
MV_{t-1} = Market Value at time t-1
UAV_t = UAV at time t
UAV_{t-1} = UAV at time t-1
POS_t = Position at time t
AF_t = Adjustment Factor at time t
MV_0 = Market Value at time (0) = UAV on the day prior to market entry

RATES OF RETURN

Rebalancing

[0058] The CMI is an equal-weighted Index; however, price movements in the underlying markets make regular rebalancing necessary. The CMI uses a calendar monthly rebalancing scenario. In other words, investment in each of the Index markets is equal at the beginning of the month, diverging as losses or gains occur uniquely in each market, then re-balanced to equal weights at the beginning of the next month.

[0059] In the historical time series, when markets have joined the Index intra-month, monthly rebalancing assumes that their inclusion is 'known' at the beginning of the month. Thus, the new

market receives an equal allocation for that month accordingly, has zero returns until the market joins, and the rate of return is included in that month's average.

Daily Returns

[0060] The calculation of daily CMI returns must account for the fact that intra-month market weightings diverge from 1/25. Thus, individual market weights are tracked and used to derive daily returns for the CMI Price Index.

Monthly & Annual Returns

[0061] The monthly and annual returns for the CMI Price Index are simply the average of the individual market monthly or annual rates of return.

[0062] All Indices are initialized to 1000 on December 31, 1969.

[0063] The CMI Total Return is provided monthly and equals the CMI Price Index plus the US risk-free interest rate (Ibbotson Associates 30-day T-bill return).